## Claims

A carbonyl compound represented by the following formula
 [1],

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$$CH_3(CH_2)_{n+2}CH_2$$
 $CHCH_2$ 
 $CH_3(CH_2)_nCH_2$ 
 $CH_3(CH_2)_nCH_2$ 
 $CH_3(CH_2)_nCH_2$ 
 $CH_3(CH_2)_nCH_2$ 

wherein X is hydrogen, a hydroxy group, an alkoxy group or a group derived from a polyol, and n is 4 to 30.

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- 2. The carbonyl compound according to claim 1 wherein n of the formula [1] is 4 to 20.
- 3. The carbonyl compound according to claim 1 wherein n of the formula [1] is an even number of 4 to 10.
  - 4. The carbonyl compound according to claim 1 wherein n of the formula [1] is 6.
- 5. The carbonyl compound according to claim 1 wherein X of the formula [1] is an alkoxy group (-OR) and R is a hydrocarbon group with 6 to 30 carbon atoms.
- 6. The carbonyl compound according to claim 1 which is an ester compound derived from a hindered alcohol.

- 7. The carbonyl compound according to claim 6 wherein the hindered alcohol is a compound selected from trimethylolpropane, trimethylolethane, and neopentylglycol.
- 5 8. A synthetic lubricant comprising the carbonyl compound according to any one of claims 1 to 7.
  - 9. A cosmetic base material comprising the carbonyl compound of claim 5.

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- 10. A plasticizer comprising the carbonyl compound of claim5.
- 11. A method for producing the carbonyl compound according to claim 1 comprising the steps of:
  - (a) dimerizing a compound represented by  $CH_3(CH_2)_{n+2}CH_2CH=CH_2$  (wherein n is 4 to 30) by using a metallocene catalyst to synthesize a vinylidene compound of the following formula [2], and
- (b) reacting the vinylidene compound of the following formula [2] with carbon monoxide and hydrogen under oxo reaction conditions to synthesize an aldehyde compound of the following formula [3].

$$CH_3(CH_2)_{n+2}CH_2$$
  $C=CH_2$  [2]  $CH_3(CH_2)_{n+2}CH_2$   $CHCH_2CHO$  [3]  $CH_3(CH_2)_nCH_2$ 

- 12. The method according to claim 11 further comprising the step of:
- (c) oxidizing the aldehyde compound of the formula [3] under oxidizing reaction conditions to synthesize a carboxylic compound of the following formula [4].

$$CH_3(CH_2)_{n+2}CH_2$$
  
 $CHCH_2COOH$  [4]

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